

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A system for distribution of energy to portable hydrogen fuel cell powered devices, comprising:
- (a) at least one station including:
    - (i) an external port coupled to an external port controller and a water supply;
    - (ii) an external port controller connected to an electricity supply grid, wherein such port controller controls the flow of electricity through the external port;
  - (b) an internal port mounted on a hydrogen fuel cell powered device for receiving electricity and water to be utilized by the an onboard fuel plant of the device to produce hydrogen fuel;
  - (c) an internal controller carried on the device for controlling aspects of the supply of electricity and water to the device; and
  - (d) a connector for coupling the external port of the station to the internal port of the device for the supply of electricity and water therebetween under the control of the external port controller and/or the internal controller.
2. The system of Claim 1, wherein the connector further includes a data link for transmitting data between the external port controller and the internal controller attendant to the supply of electricity to the device.
3. The system of Claim 1, wherein the station further comprises a data link for transmitting data between the external port controller and at least one electricity service provider attendant to the supply of electricity from the electricity supply grid to the external port controller and the external port.
4. The system of Claim 3, wherein the data link enables communication with a plurality of electricity service providers.
5. The system of Claim 1, further comprising a data link for transmitting data between the internal controller and at least one electricity service provider for transmitting data attendant to the supply of electricity over the electricity supply grid to the device.

6. The system of Claim 1, wherein an electrical conductor for transmission of electricity and a conduit for passage of water are integrated into a unitary connector.

7. The system of Claim 6, wherein a data link for transmission of data attendant to the electricity supply between the external port and the internal port is integrated into the connector.

8. The system of Claim 1, further comprising a plurality of portable hydrogen fuel cell powered devices, each provided with an internal port and an internal controller, and a plurality of stations, each provided with an external port and an external port controller.

9. The system of Claim 8, further comprising a data link for transmitting data between the external port controller and the internal controller attendant to the supply of electricity to the device, the data link transmitting data providing an identification of a specific connected device to the external port controller.

10. The system of Claim 1, further comprising means for delivery of electricity back from the portable hydrogen fuel cell powered device through the coupled internal port and external port to an electricity network.

11. The system of Claim 10, wherein the means for delivering electricity comprises a DC to AC converter.

12. The system of Claim 10, wherein the electricity network comprises a local electricity distribution network to which electricity is delivered.

13. The system of Claim 1, wherein at least one of the internal and external controllers participates in negotiating terms of the purchase and sale of electricity that is to be supplied to or from the device, the negotiation being carried out between at least two of: one or more electricity service providers; the internal controller; and the external port controller.

14. A system for distribution of energy to portable hydrogen fuel cell powered devices, comprising:

- (a) at least one station including:
  - (i) an external port coupled to an external port controller and a water supply;

- (ii) an external port controller connected to an electricity supply grid, wherein such port controller controls the flow of electricity through the external port;
- (b) an internal port mounted on a hydrogen fuel cell powered device for receiving electricity and water to be utilized by an onboard fuel plant of the device to produce hydrogen fuel;
- (c) an internal controller carried on the device and connected to control aspects of the supply of electricity and water to the device;
- (d) a connector for coupling the external port of the station to the internal port of the device for the supply of electricity and water therebetween under the control of the external port controller and/or the internal controller; and
- (e) a data link for transmitting data between the external port controller and the internal controller attendant to the supply of electricity to the device.

15. The system of Claim 14, wherein the data link is integrated into the connector.

16. The system of Claim 14, wherein the data transmitted over the data link includes data selected from the group consisting of data: identifying the device; identifying the external port controller; electricity purchase and sale terms; and transaction data associated with electricity purchase and sale.

17. The system of Claim 16, wherein the purchase and sale terms include preset preferences, selected from the group consisting of price, quantity and time of delivery, that are predetermined by an owner of the device and /or the owner of the external port.

18. The system of Claim 14, further comprising an operator interface carried on the device for interface between an operator of the device and the internal controller.

19. The system of Claim 14, further comprising a plurality of portable hydrogen fuel cell powered devices, each including an internal port and an internal controller, and a plurality of stations, each including an external port and an external port controller, wherein the data transmitted over the data link includes identification data for a particular station and/or a particular device that are coupled for electricity supply.

20. The system of Claim 19, wherein the internal controller includes memory for storage of a data log corresponding to multiple electricity supply events.

21. A system for distribution of electricity from at least one electricity service provider to portable hydrogen fuel cell powered devices, comprising:

- (a) at least one station including:
  - (i) an external port coupled to an external port controller and a water supply;
  - (ii) an external port controller connected to an electricity supply grid, wherein such port controller controls the flow of electricity through the external port;
  - (iii) a data link for transmitting data attendant to the supply of electricity between the external port controller and the at least one electricity service provider via a data network;
- (b) an internal port mounted on a hydrogen fuel cell powered device for receiving electricity and water to be utilized by an onboard fuel plant of the device to produce hydrogen fuel;
- (c) an internal controller carried on the device and connected to control aspects of the supply of electricity to or from the device; and
- (d) a connector for coupling the external port to the internal port for the supply of electricity therebetween, the electricity being supplied from the at least one electricity service provider to the device under the control of the external port controller and/or the internal controller in communication with the at least one electricity service provider over the data network.

22. The system of Claim 21, wherein the data network comprises a wide area digital communication network.

23. The system of Claim 22, wherein the data network comprises the Internet.

24. The system of Claim 21, wherein the data transmitted over the data link to the at least one electricity service provider includes data selected from the group consisting of sales price, quantity and delivery time.

25. The system of Claim 21, wherein the system further comprises a plurality of portable hydrogen fuel cell powered devices, each including an internal port and an internal controller, and a plurality of stations, each including an external

port and an external port controller, wherein the data transmitted over the data link to the at least one electricity service provider includes information identifying a specific device and/or a specific external port that are coupled.

26. The system of Claim 25, wherein the data transmitted over the data link to the at least one electricity service provider includes data causing a charge to be made to a financial account of the owner of a device that receives electricity from the coupled external port and a corresponding credit to be made to the account of the owner of the external port.

27. The system of Claim 25, further comprising means for delivery of electricity back from the portable hydrogen fuel cell powered device through the coupled internal port and external port to an electricity network, and wherein the data transmitted over the data link to the at least one electricity service provider includes data causing a credit to be made to a financial account of the owner of a device that delivers electricity to the coupled external port and a corresponding charge to be made to the account of the owner of the external port.

28. The system of Claim 21, wherein a plurality of electricity service providers are in communication with the external port controller via the data link and data network.

29. The system of Claim 21, wherein the external port is also coupled to a water supply and when connected to the internal port water is also supplied to the hydrogen fuel cell powered device for use in generating hydrogen onboard.

30. The system of Claim 29, wherein the external controller meters the delivery of water from the water supply to the device.

31. The system of Claim 21, further comprising a second data link for transmitting data between the external port controller and the internal controller attendant to the supply of electricity to the device.

32. The system of Claim 31, wherein the data transmitted includes a predetermined time of day at which electricity is to be supplied to the device.

33. A system for distribution of energy to portable hydrogen fuel cell powered device, comprising:

- (a) at least one station including:

(i) an external port coupled to an external port controller and a water supply;

(ii) an external port controller connected to an electricity supply grid, wherein such port controller controls the flow of electricity through the external port;

(b) an internal port mounted on a hydrogen fuel cell powered device for receiving electricity and water to be utilized by the device's on board fuel plant to produce hydrogen fuel; and

(c) a connector for coupling the external port of the station to the internal port of the device for the supply of electricity and water therebetween under the control of the external port controller.

34. A system for automatically negotiating the purchase of electricity, from one or more electricity service providers over an electricity supply grid, by a portable hydrogen fuel cell powered device, comprising:

(a) an external port coupled to and external port controller;

(b) an internal port mounted on the hydrogen fuel cell device and connectable to the external port to receive electricity therefrom;

(c) an external port controller connected to an electricity supply grid, where such port controller controls the supply of electricity through the external port;

(d) an internal controller carried on the device and connected to control aspects of the purchase of electricity via the connected internal port; and

(e) means for automatically negotiating between at least two of the one or more electricity service providers, the external port controller and the internal port controller for the purchase and delivery of electricity from the electricity supply grid to the device via the connected ports.

35. The system of Claim 34, wherein the means for automatically negotiating is controlled by the external port controller.

36. The system of Claim 34, wherein the means for automatically negotiating comprises the internal controller or the external port controller and negotiation is carried out with the external port controller and the internal controller.

37. The system of Claim 34, wherein the means for automatically negotiating the purchase and delivery of electricity is carried out by a plurality of electricity service providers.

38. The system of Claim 34, wherein the means for automatically negotiating obtains a set of data from the internal controller including preferences of an owner of the device with respect to purchase parameters selected from the group consisting of cost, quantity and time of delivery.

39. The system of Claim 38, wherein the system comprises a data link for transmitting data attendant to the supply of electricity between the external port controller and at least one electricity service provider via a data link, wherein the data set of the device owner's preferences are obtained from an electricity service provider associated with the device owner.

40. The system of Claim 34, wherein the external controller communicates with an electricity service provider associated with an owner of the external port, over a data network, to determine terms for the supply of electricity.

41. The system of Claim 34, further comprising means for automatically negotiating for the sale of electricity from the device to a non-utility electricity distribution network via the connected ports.

42. The system of Claim 41, wherein the means for automatically negotiating for the sale of electricity includes a connection between the external controller and/or the internal controller and a data network, the delivery of electricity from a device resulting in a credit being made to a financial account of the owner of the device via the data network.

43. The system of Claim 34, wherein the means for automatically negotiating includes a connection between the external controller and a data network, the supply of electricity to a device resulting in a charge to be made to a financial account of the owner of the device via the data network.

44. The system of Claim 34, wherein a data record reflecting energy supply transactions is maintained in memory associated with the internal controller of the device.

45. The system of Claim 34, wherein the means for automatically negotiating comprises a data network over which the external port controller and the one or more electricity service providers can communicate.

46. The system of Claim 34, wherein negotiation occurs between the external port controller and the internal port and entails a financial premium charged by an owner of the external port to an owner of the device for the electricity supplied to the device via the external port.

47. The system of Claim 34, wherein the terms negotiated by the means for automatically negotiating include a time of day at which electricity is to be supplied to the device, the time of day of supply being predetermined independently of a time of connection to the external port.

48. A system for the supply of electricity between an electricity network and a portable hydrogen fuel cell powered device, comprising:

- (a) an external port coupled to the electricity network;
- (b) an internal port carried on a hydrogen fuel cell device and connectable to the external port for the flow of electricity therebetween;
- (c) a controller coupled to one of the external port and the internal port, the controller being operable to selectively initiate and control (i) the supply of electricity from the electricity network to the device; and (ii) the delivery of electricity from the device to the electricity network.

49. The system of Claim 48, wherein the electricity network comprises a network selected from the group consisting of a local electrical network through which power is consumed and an electricity supply grid.

50. The system of Claim 48, wherein the electricity network comprises a local electrical network through which electricity is consumed and the delivery of electricity from the device to the local electrical network is regulated in response to the consumption of electricity by the local electrical network.

51. The system of Claim 48, wherein the controller initiates negotiations between the device and the electricity network for purchase of electricity to be delivered from the device to the network.

52. The system of Claim 48, further comprising a DC to AC converter carried on the device for producing AC electricity to be delivered to the electricity network.



53. A method of distributing electricity over an electricity supply grid from a plurality of electricity generators, including a first subset of generators that generate electricity without producing atmospheric pollutants and a second subset of generators that produce atmospheric pollutants when generating electricity to a portable hydrogen fuel cell powered device, comprising:

- (a) connecting a port on the portable hydrogen fuel cell powered device to a port coupled to the electricity supply grid;
- (b) selecting the first subset of generators from the first and second subsets of generators; and
- (c) influencing the aggregate of the sources of electricity supplied to the electricity supply grid to increase the supply from the first subset of generators.

54. The method Claim 53, wherein the controlling of the supply of electricity includes transmission of data over a data network connecting the port coupled to the electricity supply grid with the plurality of electricity generators.

5550. The method of Claim 54, wherein the supply of electricity is controlled by an external controller connected to the port that is coupled to the electricity grid.

56. A method for distribution of energy to portable hydrogen fuel cell powered devices, comprising:

- (a) coupling an external port to an electricity supply grid and a water supply;
- (b) connecting an internal port mounted on a portable hydrogen fuel cell powered device to the external port;
- (c) supplying electricity and water from the electricity supply grid and water supply to the portable hydrogen fuel cell powered device through the connected ports; and
- (d) controlling the supply of electricity and water with a controller connected to one of the external and internal ports.

57. A method for distribution of energy to portable hydrogen fuel cell powered devices, comprising:

- (a) coupling an external port to an electricity supply grid and a water supply;

(b) connecting an internal port carried on a portable hydrogen fuel cell powered device to the external port;

(c) supplying electricity and water from the electricity supply grid and water supply to the portable hydrogen fuel cell powered device through the connected ports;

(d) controlling the supply of electricity and water with at least one of an external controller connected to the external port and an internal controller carried on the device and connected to the internal port; and

(e) transmitting data attendant to the supply of electricity and water between the external and internal controllers.

58. A method for distribution of electricity from at least one electricity service provider to portable hydrogen fuel cell powered devices, comprising:

(a) coupling an external port to an electricity supply grid;

(b) connecting an internal port carried on a portable hydrogen fuel cell powered device to the external port;

(c) supplying electricity from the at least one electricity service provider, over the electricity supply grid, to the device through the connected ports;

(d) controlling the supply of electricity with an external controller connected to the external port; and

(e) transmitting data attendant to the supply of electricity between the external controller and the at least one electricity service provider via a data network.

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